

## Cultivating “success” and “failure” in policy: participatory irrigation management in Nepal

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Introduced over a decade ago and considered largely successful by irrigation professionals, Irrigation Management Transfer and Participatory Irrigation Management (IMT/PIM) policies were recently reviewed and seen to have resulted in more cases of “failure” than “success”. Primary research on two IMT/PIM projects in Nepal, which were among the few “successes” in the assessment supporting a “failed” PIM, shows how such policy-driven evaluations, when defining success, overlook incongruities between policies, institutions, and the evolving dynamics around class, caste, ethnicity, and gender. Without exploring the dynamics of practice, the process of “cultivating” success and/or failure in evaluations provides little insight on how irrigation management works on the ground.

Introduites il y a plus de dix ans et considérées par les professionnels de l’irrigation comme ayant donné de bons résultats, les politiques de Transfert de la gestion de l’irrigation et de Gestion participative de l’irrigation (TGI/GPI) ont récemment fait l’objet d’un examen et jugées avoir abouti à plus de cas d’« échecs » que de « succès ». Des recherches primaires menées sur deux projets de TGI/GPI au Népal, qui figuraient parmi les quelques « succès » de l’évaluation qui soutenaient une GPI « échouée », montrent comment ces évaluations impulsées par les politiques, au moment de définir le succès, ignorent les incohérences entre les politiques et les institutions, ainsi que la dynamique en mutation autour de la classe, de la caste, de l’ethnie et du genre. À moins d’explorer la dynamique de la pratique, le processus consistant à « cultiver » le succès et/ou l’échec dans les évaluations ne donne que peu d’aperçus de la manière dont la gestion de l’irrigation fonctionne sur le terrain.

Tras su inauguración hace más de diez años, la Transferencia del Manejo de la Irrigación y el Manejo Participativo de la Irrigación (TMI/MPI) fueron calificados como exitosos por los profesionales del riego. Sin embargo, una revisión de las políticas que orientan estos proyectos realizada en fechas recientes mostró que existen más casos de «fracaso» que de «éxito». Ello llevó a que en Nepal se investigaran dos proyectos TMI/ MPI, que en un informe sobre el “fracaso” del MPI habían sido reportados anteriormente como algunos de los pocos casos de “éxito”. Dichas investigaciones permitieron determinar que, a la hora de definir el éxito, las evaluaciones basadas en las políticas mencionadas, pasan por alto las incongruencias existentes entre dichas políticas, las instituciones y las cambiantes dinámicas en torno a clase, a casta, a etnicidad y a género. En este sentido, si no se examinan las dinámicas relacionadas a la práctica, el proceso de « cultivar » el éxito y/o el fracaso en las evaluaciones explica muy poco acerca de cómo funciona la gestión de la irrigación sobre el terreno.

**Keywords:** Irrigation; Participation; Aid; Developmental policies; South Asia

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## Introduction

This article scrutinises recent claims in the irrigation sector that programmes of Irrigation Management Transfer (IMT) and/or Participatory Irrigation Management (PIM) popularly advocated for since the late 1980s, have failed to deliver (FAO/IWMI 2007; IWMI 2009; IWMI/FAO 2009). IMT and PIM policies relate to the institutional transfer of irrigation systems to user farmers, and the corresponding participation and empowerment of the farmers in irrigation financing and management (Khanal 2003; FAO/IWMI 2007). Generally, Participatory Irrigation Management (PIM) policies have been the way to achieve initially, partial, and then complete “transfer” from government agencies to farmer user associations, a process called Irrigation Management Transfer (IMT); the terms IMT and PIM are generally used interchangeably.

Funded by the Asian Development Bank (ADB), the International Water Management Institute (IWMI) analysed 108 cases of irrigation management transfer projects in Asia to prepare a background report for the workshop, “Trends and Transitions in Asia’s Irrigation: What are Prospects for the Future?” (Bangkok, 19–21 February 2009). The report states:

“most researchers are of the view that IMT/PIM is a conceptually sound policy and the problem lies with [its] implementation ... However, [from] our studies and readings of the history of IMT policy, we claim that ... it is not so much [the case of] an implementation failure as it is a failure of [the] conceptual idea behind it [PIM].” (IWMI 2009, 37).

This indicates a dramatic shift in perception among international donors and irrigation experts (including at IWMI), who until recently appeared relatively assured about the success and relevance of IMT/PIM policies (Groenfeldt 2003; Rap 2007). For over two decades, few questions were raised about the contradictions inherent in the objectives of participatory irrigation management, which are efficiency, equity, and empowerment (Esman and Uphoff 1984). It is therefore striking that these recent evaluations of IMT/PIM projects concluded first that, IMT/PIM projects were “*a mixture of successes and failures*” (FAO/IWMI 2007, 45); and more recently as “*60% failure*”, because the idea or approach of IMT/PIM was conceptually flawed (IWMI 2009, 13). Such a radical change of perception around a popular policy approach is intriguing. This paper explores this recent reversal of thinking in the sector, and analyses the basis as well as the process of arriving at these policy claims. We compare our primary analyses of two IMT schemes in Nepal with work of other researchers on these and other IMT/PIM projects, to show that the contrary claims of an earlier “success” and now conceptual “failure” of IMT/PIM policies reflect the shifting concerns and priorities of policymakers, rather than the contextual, complex realities of irrigation management on the ground (Mosse 2004; Rap 2004, 2007; Suhardiman and Mollinga 2012).

From a secondary analysis of the report, and discussions with some of the report authors, we understand that evidence for this shift in thinking was largely based on analysis and interpretation of secondary data (FAO/IWMI 2007; IWMI 2009; IWMI/FAO 2009), and through dialogue between irrigation professionals from different, but distinctly northern and international institutions and actors through organised email conferences (see below). Such an exclusive network tends to isolate the making of policy from actual practice and practitioners (cf. Mosse 2004; Rap 2007). This would indicate that the task of policy (re)modelling is an outcome of a strategic nexus among certain policymakers and/or drivers (donors, officials, international consultants, and/or researchers). In this paper, we examine whether this policy process and the consensual conclusions of a “failed IMT/PIM” are demonstrative of Mosse’s (2004, 651, 654) argument that “*coherent policy ideas*” represent “*the need to maintain relationships*” in the development arena and may not always be based on an overview of contextual ground realities.

Our findings illustrate that the claim of a failed IMT/PIM simply *rephrases* an enduring argument that has always laid at the heart of IMT/PIM's attractiveness with donors and governments, that irrigation management suffers from a negative feedback loop of “*poor maintenance => poor water control => poor cost recovery => poor maintenance*” mainly due to farmers not managing the system properly (Groenfeldt 2003, 2). The IWMI (2009) report signals a move away from Participatory Irrigation Management (PIM) to Public Private Partnerships (PPP), which as the report argues, is also increasingly preferred by international donors:

“One view is that there is a need to move away from the participation paradigm since farmers are not necessarily interested in cooperative action ... if we can engage the private sector [to improve] irrigation water service delivery ... it will be a win-win option for both the farmers and the irrigation agency.” (IWMI 2009, 42).

Defining the problem as a negative feedback loop embodies essentially a compromise in irrigation policy-making – between engineers who are trained and thus view irrigation system performance as an issue of construction and technical maintenance, and institutional reform advocates who are keen to rationalise irrigation system performance by means of decentralised management and cost-recovery through farmers' participation. The formulation of the “irrigation question” in this way has allowed (and continues to allow) elite sector experts to further neo-liberal ideas without entirely compromising the professional authority and technical expertise of irrigation engineers – as both reform advocates and engineering technocrats essentially see irrigation as a technical matter of (water) control and system maintenance (cf. Suhardiman and Mollinga 2012). We note that this neo-liberal engineering narrative, as we call it, which defined both the (now failed) IMT/PIM, as well as the new proposed irrigation management policies, remain shielded from real scrutiny in the evaluations.

The IWMI (2009) report concluded that apart from the 40% “*successful*” IMT/PIM projects, the IMT/PIM approach by and large failed in enhancing equity as well as promoting participation. However, the social benefits of participatory development were always marginal to IMT/PIM policies, just as the economic and technical benefits (cost recovery and better maintenance) were at the heart of IMT/PIM's popularity with foreign and national policy elites (Guthman 1997; Groenfeldt 2003; Suhardiman and Mollinga 2012). In that context, it seems hardly appropriate to “fail” the IMT/PIM projects on the participation criteria.

The two projects we analysed were among the 108 case studies evaluated in the IWMI (2009) report to arrive at the policy claim of a failed PIM, although these two specific projects were themselves evaluated as examples of success. To understand the dynamics of participation on the ground we have focused especially on users' perceptions of equity and water rights, and the processes of participation in irrigation. Extrapolating our analysis of how participation works, and for whom, in these two projects in Nepal, in order to explore the measures of success assigned to them in the evaluation (IWMI 2009), we argue that such policy-driven evaluations are abstract and distanced from complex ground realities in Nepal (cf. Tamang 2002; Lal 2012).

Below, we elaborate how policy-driven evaluations and the practice of restructuring neo-liberal irrigation policies top-down are of little help in understanding how IMT/PIM has failed (or succeeded), or why and whether newly-proposed policy options will work any better. The first section of the paper presents a background on neo-liberal policies in irrigation in Nepal. This is followed by an overview of the research methodology and a description of the two irrigation systems/locales, setting the ground to explain the process of irrigation management transfer in the two systems, and the experiences around participation – of a diverse group of farmers in the

two schemes, including women. The next section compares the evaluation reports' (IWMI 2009; IWMI/FAO 2009) policy claims of “*success*” to ground realities of participation in the case of the two systems in Nepal. The final section discusses the process of arriving at the policy conclusion of a failed IMT/PIM.

### Neo-liberal irrigation policies in Nepal

Guthman's (1997) analysis on development in Nepal from 1951 explains the adoption of neo-liberal irrigation policies. According to her, competition for public funds was aggravated by earlier interventions in modernising irrigated agriculture during 1970s and 1980s, which was part of the Green Revolution. Ironically “[t]he Green revolution did not ‘transfer’ well to Nepal”, and “by 1979 ... Nepal was no longer a food grain surplus state... Worse, the Green Revolution had created a heavy reliance on imported inputs, yet the terms of trade with India, especially, had deteriorated with the oil crisis of the early 1970s. This created the first serious balance of payments problem.” (Guthman 1997, 57).

Guthman (1997, 58, 61) explains that the start of the neo-liberal aid regime in Nepal in the mid-1980s “was rife with the typical contradictions of structural adjustment” and that “His Majesty's Government in Nepal was dutifully pursuing policies that were presumed to enhance local control (or rather local risk), as part of its donor-imposed programme”.

In this context, in the late 1980s, the functioning of centralised irrigation systems and services was compared negatively with an assumed efficiency, equity, and sustainability in traditional farmer-managed irrigation systems. Reforms in the sector called for a handover of infrastructure, management, and services from bureaucratic control to farmers associations, through facilitating the increased participation of farmers in irrigation management: this was labelled Participatory Irrigation Management (PIM). In Nepal, the demand from major donors such as the World Bank and Asian Development Bank was to fiscally restructure irrigation management; this restructuring was perceived to address the shortage of government and developmental funding for irrigation operation and management. This, amongst other factors, resulted in the widespread endorsement and application of IMT/PIM principles in irrigation policy from the late 1980s. Thus, the broader neo-liberal structural adjustment designs influenced the policy discourse and emphasised the transfer of irrigation responsibilities from public irrigation agencies to farmers, aiming at moving the costs and risks of maintaining irrigation systems down the chain, from government to users (Suhardiman and Mollinga 2012).

Transferring financial and managerial responsibilities to the farmers was in line with the assumption that the poor performance of irrigation systems under government control was mainly a matter of low cost recovery (at the central level) and poor maintenance (Huppert, Svendsen, and Vermillion 2003). However, the perceived underperformance of public irrigation systems has never been just a case of cost-recovery and technical maintenance (Groenfeldt 2003). Poor construction quality (Suhardiman and Mollinga 2012) and the choice of technology design (Khanal 2003) are among several other factors that certainly affect irrigation system performance. The fact that cost-recovery and maintenance are consistently portrayed as the key problems in relation to irrigation management – the neo-liberal engineering irrigation narrative – effectively prevents a robust analysis of the experience of farmers and irrigation staff at the operational levels.

It is not surprising that concerns around equity and participation continue to take a back seat in evolving policy discourses relating to irrigation. They were, in the first place, not central tenets of the dominant ideology which focused on costs and efficiency above social equity issues. The objective of IMT/PIM policy was to increase users' participation in formalised water user

associations (WUA). This objective included the introduction of individual women's membership, as stated in the national Irrigation Policy of 1992, which made 20% women's representation mandatory in WUA executive committees (Shukla et al. 2000). User participation in IMT/PIM policy was based on assumptions that a collective of farmers bound by principles of cooperation would more efficiently and equitably manage the irrigation infrastructure and water than large government bureaucracies. Alternatively, there were simplistic perceptions that "*participation*" could be externally engineered, by degrees, from no participation to the highest levels of participation (cf. Khanal 2003).

Such views continue to influence thinking in the irrigation sector, as seen in the IWMI (2009) report, which identifies farmers as highly independent individuals driven by economic rationality. It is now stated that "*participation*" is no longer the driving agenda for irrigation reforms, because "*farmers are not necessarily interested in cooperative action unless and until the benefits of cooperation exceeds that of costs*" (IWMI 2009, 42). On the other hand it is also argued that "*Public Private Partnerships is but a variant of the IMT/PIM model*" and a "*fine tuning [of] IMT/PIM by incorporating PPP principles [incrementally]*" (IWMI 2009, 42, 46). The assumption is that external policies (such as the PIM, or the proposed PPP) provide an equal opportunity to rational farmers, who regardless of divides of class, caste, ethnicity, or gender will be able to equally realise the potential benefits of promoted policies. In practice, participation, or the realisation of policy benefits for all, is far more complex. Our analyses show that social, economic, and political divides among farmers result in an unequal spread of irrigation opportunities and incentives.

### Methodology and selection of research sites

The two irrigation systems that we analysed in Nepal are the Khageri Irrigation System (3900 ha) and the Panchakanya Irrigation System (600 ha), hereafter "Khageri" and "Panchakanya". These systems were transferred under IMT/PIM policies in the 1990s. Based on a literature review and field research, including interviews with members of WUAs, farmer conversations, and observations, in Nepal between 2009 and 2011, this paper illustrates how what is observed and experienced locally is significantly different to IWMI's (2009) conclusions of "*success*" assigned to these projects.

The Khageri and Panchakanya systems, situated in Chitwan district (see Figure 1), were selected for a number of reasons. First, the two schemes were among the first 11 irrigation projects in Nepal selected by the Department of Irrigation (DOI) for handover to the farmer user community under the Asian Development Bank and United States Agency for International Development (USAID) supported Irrigation Management Transfer Project (IMTP, 1995–2002). Chitwan district's close proximity to the capital Kathmandu and its educated and politically conscious population were considered favourable for a successful IMT/PIM. The handover process of both Khageri and Panchakanya was documented extensively by the then engineer of the DOI who was in charge of the Chitwan district between 1994 and 1998 (Khanal 2003). A joint management between the government and the farmers was identified for Khageri, mainly because the irrigation system was large and expected maintenance costs high. In Khageri, negotiations between the DOI and farmers started in 1992, and in 1996, a formally established WUA signed a memorandum of agreement for joint management with the DOI. However, for specific reasons described below, an informal irrigators group had already been established among some farmers in Panchakanya, prior to IMT/PIM interventions. Negotiations on handover between this informal group and the DOI started in 1994 and ended in 1998, when the system was officially fully transferred to a newly established formal WUA (Khanal 2003). It is important to note that both the schemes were rehabilitated prior to handover. This was a common practice in most of these early cases of transfer,



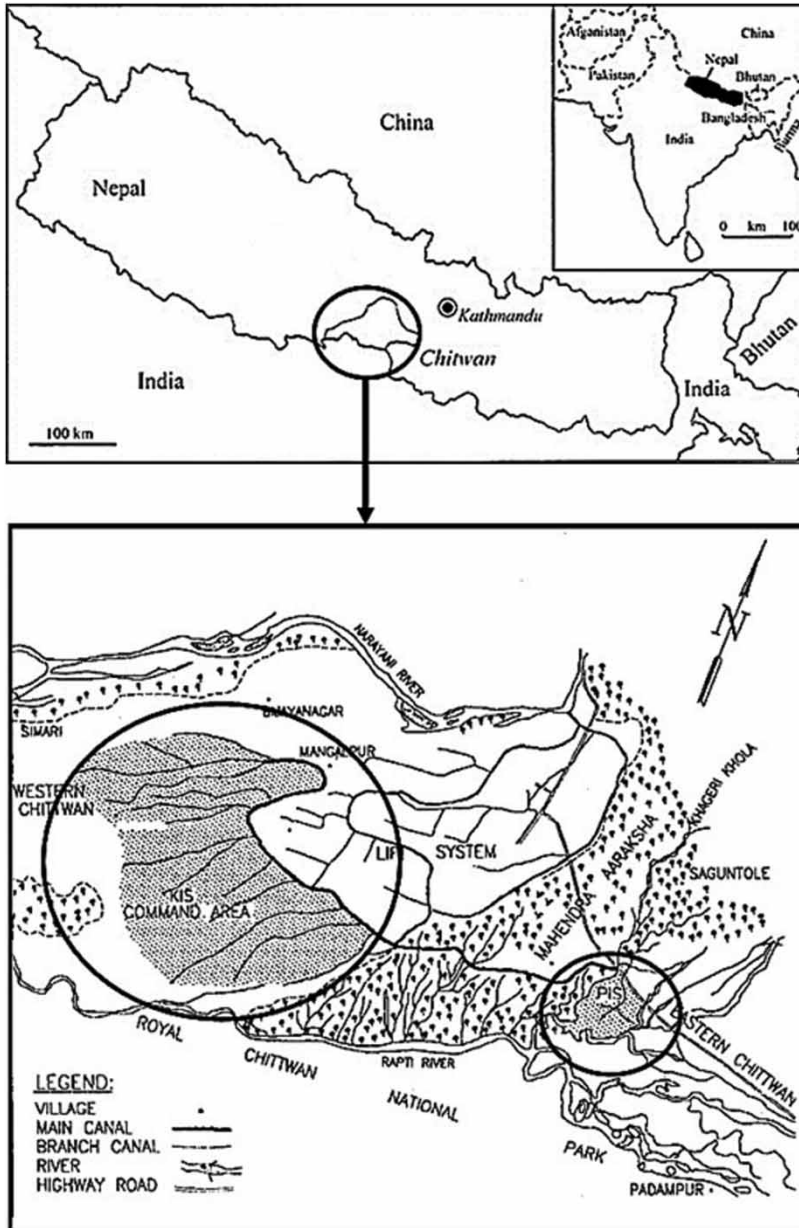


Figure 1. Chitwan and the Khageri and Panchakanya irrigation systems.  
Source: The first map is adapted from Agergaard 1999, 13 and the second map is adapted from Khanal 2003, 66.

because policymakers realised that farmers would otherwise feel that the government was just trying to overload public responsibility onto them (Khanal 2003, 133; cf. Suhardiman and Mollinga 2012).

Second, the pilot model status of both Khageri and Panchakanya has attracted attention from numerous national and international actors studying IMT/PIM processes in Nepal. The process of handover in both systems was extensively studied by Nepalese researchers of the Institute of

Agriculture and Animal Science (IAAS) (Shukla et al. 1999, 2000). In 1998, the Nepal chapter of the World Bank-based International Network of Participatory Irrigation Management (INPIM) was established among researchers and engineers who were involved in these two projects. Around the same time, the National Federation of Irrigation Water User Associations Nepal (NFIWUAN) was formed, among others, by a number of Khageri and Panchakanya WUA representatives, supported by the Ford Foundation. In the 1990s, when policy faith in IMT/PIM was high, farmers' participation in Khageri and Panchakanya was considered exemplary for the IMT/PIM programme in Nepal, and elsewhere too.

Third, we chose to analyse these projects because of the enduring fascination that these schemes hold for irrigation experts, and the popular label of “*success*” assigned to these two schemes, including by IWMI (2009). For the assessment of Khageri and Panchakanya, IWMI used the work of Khanal (2003) who in turn had referenced the earlier work of Nepalese researchers at the IAAS (Shukla et al. 1999, 2000). Interestingly, Khanal (2003) states that while some powerful actors, such as the Director General of the DOI defined Panchakanya as a success, Khanal himself, and IAAS researchers, expressed doubts about such an opinion. We built on these contrary analyses to critically examine the success assigned to these projects, and extrapolate our findings to question the criteria used in the IWMI (2009) report for defining success and failure and the recent framing of the 20-year-old IMT/PIM policy as a conceptual “*failure*”.

### Background to the research area

Chitwan district is a riverine valley (inner Tarai) located between two mountain ranges. The district is divided into the water abundant East and less watered West Chitwan by the Khageri River and its tributaries, which is the source of irrigation water for both the Khageri and Panchakanya systems. Chitwan district experiences a sub-tropical monsoon, with an annual rainfall of 2000 mm, of which 75% falls in the wet season (Shukla et al. 1999). In these conditions, irrigation is a prerequisite to secure rice yields in the monsoon, and especially during the dry season.

Chitwan is presented by policymakers as a recently inhabited area in Nepal, settled since the 1950s. This view, which is incorrect, has significant implications for the claimed success of these irrigation systems. Chitwan did indeed consist of malaria-infested forests and grasslands prior to the 1950s, but these areas were occupied, farmed, and irrigated by indigenous *Tharu* and *Darai* people, who had partial immunity to malaria. In the 1950s, malaria was controlled by government programmes, forests were cut and (grazing) lands parcelled out and handed over to settle, primarily, high-caste Nepalese migrants from the hills. By the 1990s, the population in Chitwan had increased five-fold, and the indigenous people had lost control over most land and water resources. For example, in Panchakanya, the *Tharu* population in the area of the irrigation system had shrunk from 95% of the total population in 1970, to only 25% by 1999 (Shukla et al. 1999).

### Khageri irrigation system

There are few *Tharu* and *Darai* farmers in the Khageri area. Most land is held by high-caste migrant farmers who acquired it through resettlement programmes in the 1950s and 1960s. In 2001, 97% of the households were owner-cultivators, with an average landholding of 0.87 ha (Khanal 2003). The Khageri irrigation system was built by the DOI in the 1960s to supply water to new settlers from the hills. The system provides irrigation for about 3900 ha in West Chitwan (see Figure 2). The system hardly suffers from siltation, has few complex control structures, and is relatively cheap and easy to maintain (Khanal 2003). However, in 2000, four years after the start of joint management, about 20% of water used for irrigation in the area in the

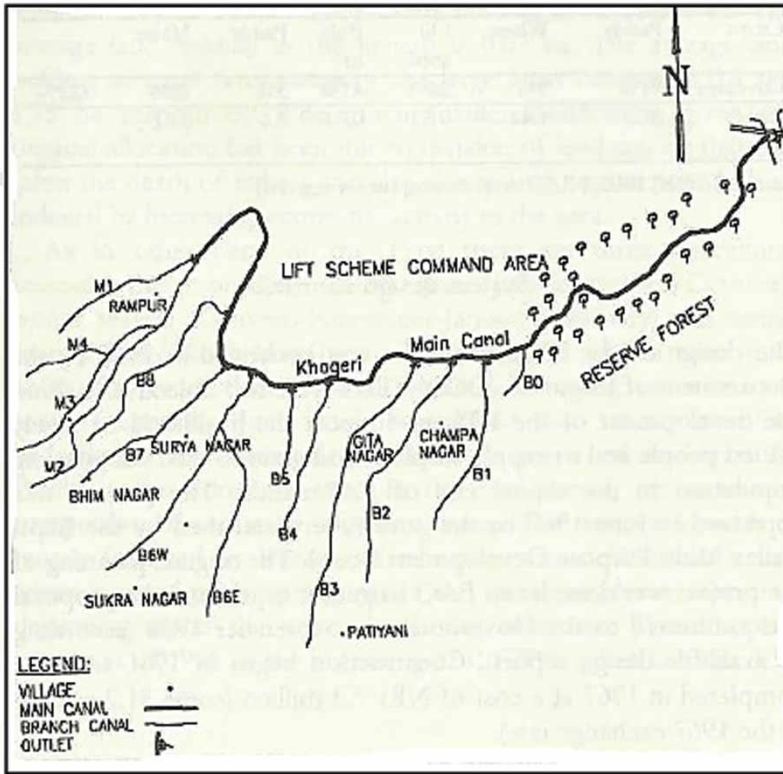


Figure 2. Canal layout of Khageri Irrigation System. Source: Khanal 2003, 80.

monsoon was from sources other than the system (Shukla et al. 2000). One of the reasons that Khageri is unable to fully service the entire area is the position of the intake of Panchakanya irrigation system, which is located 2 km upstream of the intake of Khageri irrigation system. This has resulted in significant tensions and conflicts between farmers in the two irrigation schemes. When the system was under full government administration, rules for water use were determined by farmers who had their fields located at the head-end position near the first branch canal of the system (Shukla et al. 2000). As of 2010, the WUA was involved in water distribution in the main and the branch canals; however, inequalities between head – and tail-end users has never been completely resolved.

**Panchakanya irrigation system**

Until the 1960s, irrigation in Panchakanya was entirely under *Tharu* management. A *Tharu* headman, known locally as *Jimindar* (landlord), had been assigned by the then monarchy to administer the lands and collect revenue taxes. Decisions around irrigation were made or approved by the *Jimindar*, and irrigation canals in Panchankanya in East Chitwan were built under patron-client relationships between the *Tharu Jimindar* and his fellow *Tharu* farmers. After the 1950s, the *Tharus*, including the *Jimindar* gradually lost control over their system and the irrigated land (around 100 ha) to Nepalese high-caste hill migrants, who came to dominate not just the irrigation systems, but also local economic and political affairs. By the 1970s, migrant



farmers had established an informal irrigators group, and developed close links with the DOI, which is manned largely by high-caste Nepalese engineers and bureaucrats. The DOI expanded the system to 600 ha in the late 1970s, and provided rehabilitation in the 1980s (see Figure 3). By 1988, system operation and maintenance was largely left to the irrigators group, thereby legitimising the capture of water resources by high-caste hill migrants. Thus donor and state support for irrigation development, including IMT/PIM projects, was defined along caste and ethnic lines. In 1996, around 88% of the farmers in Panchakanya were owner-cultivators, with an average land-holding of 0.67 ha (Khanal 2003). Despite a third rehabilitation of the infrastructure and a full handover of system management from the government to an official WUA in 1998, insufficient water supply has remained a persistent concern in Panchakanya, and the projected 600 ha has never been completely irrigated. In 2010, the water hardly reached the tail-end branch canals and these farmers, as in Khageri, relied on other sources for irrigation, i.e., groundwater. As for women's participation, contrary to Khageri in Panchakanya women's participation in the WUA was high initially, but levels have currently dropped to below 20%.

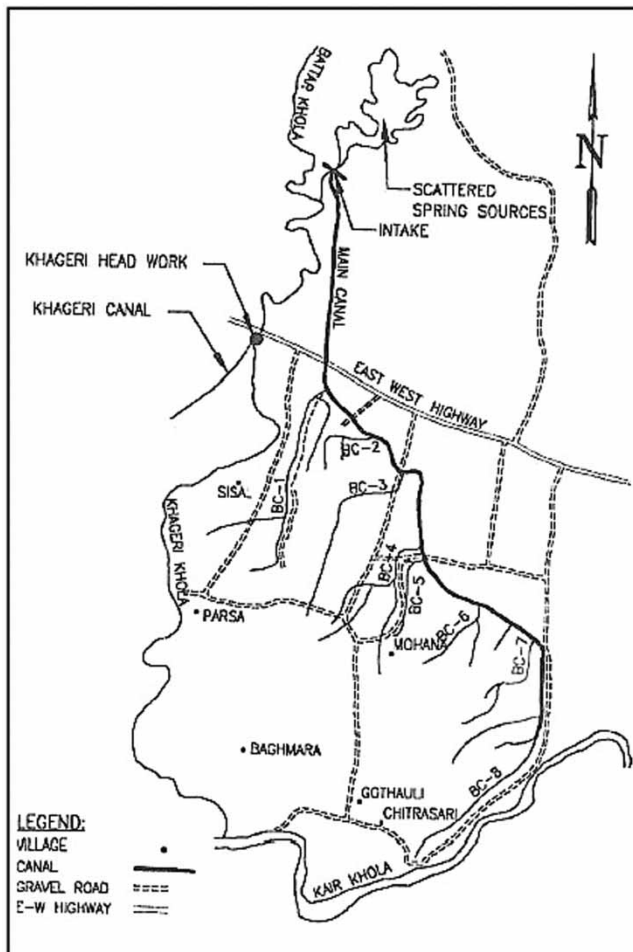


Figure 3. Canal layout of Panchakanya Irrigation System.  
Source: Khanal 2003, 70.

It is interesting that after several decades of exclusion, the last 10 years of growing ethnic discontent in Nepal and political organisation among the *Tharu* has enabled a *Tharu* farmer to become chairperson of the WUA in Panchakanya. However, *Tharu* leadership did not immediately reverse the situation of inequity in the water allocation. The following sections describe the transfer process of the two systems in the 1990s under the IMT/PIM policy.

### **The dynamics of participation**

At the policy level, the DOI's aim was to achieve decentralised management and financial autonomy of the irrigation systems through users' participation. At the project level, these objectives were translated for DOI engineers into the goal to rehabilitate the intended (design) area of 3900 ha for Khageri and 600 ha for Panchakanya – to cajole farmers into a transfer process, and the establishment of formal WUAs at various hydraulic levels (outlet, branch, and main canal) – to assure participation of all irrigators. The latter included: registration of water users, the formalisation of democratic election procedures for the WUA, fixing water distribution schedules and techniques that would allow controlling and directing the flow of water along the system, and, most importantly for the DOI, written rules for the collection of irrigation service fees (ISF). Such a rigorous design and plan to use water was alien to farmers in Khageri and Panchakanya. Head-end farmers in particular contested the idea that water was to be shared with more farmers, and they argued that there was insufficient water. This claim was justified, at least for Panchakanya. A DOI survey team concluded in 1994 that the potential area for this system was only 450 ha against the previously designed area of 600 ha, due to limitations in water supply (Khanal 2003).

The head-end farmers eventually cooperated with the DOI, and the IMT/PIM took off in Khageri and Panchakanya mostly because the politically astute migrant farmers had an incentive to take forward this initiative. In both Khageri and Panchakanya, the WUA leadership consisted of high-caste migrant farmers from the hills, whose members were engaged in, or part of, political structures that went beyond the boundaries of the irrigation systems (Khanal 2003). In Khageri, all past executives of the WUA have consistently had political links to major political parties in Nepal, notably the then-popular Nepali Congress. In Panchakanya, these political links allowed the first elected chairman of the WUA, who had been chairman of the District Farmers' Association and a long-time supporter of Nepali Congress, to successfully negotiate with the DOI in 1974 and 1982 for system rehabilitation (Khanal 2003). As of 2010, the situation in Khageri and Panchakanya remains unchanged, except that supporters of the United Marxist and Leninist party, a major political contender after the civil war in 2006, now hold key positions in the WUAs. Evidently, and this is common in Nepal, farmers appreciate such ties, even though such political alliances have implications for a participatory or apolitical representation of WUAs (Khanal 2003). Such interdependencies allow WUAs to consistently exert political pressure or bypass local and state agencies in acquiring irrigation inputs, benefits, and privileges.

For example, we found in 2010, that farmers in Khageri had claimed and received financial support from the government for the maintenance and rehabilitation of branch canals, and for building new gates. In Panchakanya, we found that the WUA secured public funds in 2008 (as part of an Asian Development Bank loan package) for the construction of a vegetable market and, through this source, generated income for system maintenance and repair. It is not surprising then, that despite the agreement of a complete handover of the scheme between the DOI and the WUA in 1998, farmers in Panchakanya continued to refer to the main canal as *nahar*, which implies a government canal.

We also observed that a rise of ISF collection rates in Khageri and Panchakanya after the official transfers has not reduced the burden on state's resources, even though the ISF collection rates

have remained largely stable. Between 1989 and 1991, while the national averages of ISF collection in Nepal were on average 25% of the total projected amount, in Khageri, collection rates increased to up to 60% after 1993 (Khanal 2003) and stayed around 50% as of 2009. In Panchakanya, ISF collection rates were 59% after 1995 (Khanal 2003) and stayed approximately 53% in 2009. Khageri, as a joint-managed scheme, was supposed to hand over 15% of the ISF to the DOI for the maintenance of the main canals, but this has never happened. The fully handed-over Panchakanya system is entitled to the full share of the ISF, and in turn is not expected to require maintenance allowances from the state government, which as discussed above, is not quite the case.

### Perceptions on equity and water rights

The formalisation of users' participation in WUAs, a key interest of the DOI, embodied a completely new view on equity and water rights for farmers. After the IMTP-project, the water was to be shared equally with more (tail-end) users in proportional terms over the entire design area of the irrigation system. For example, in Panchakanya, in 1997, it was agreed that one water share would account for 1 *kattha* (0.033 ha), and that the users of 300 shares (for 300 *kattha*, equal to 15 *bigha* or 10 ha) would be represented by one member in the general assembly of the WUA (Liebrand and Singh 2012). All users, including tail-end and low caste farmers, and eventually also women, were eligible for membership in the WUA, and entitled to equal representation based on water shares. As discussed above, proportional sharing of water with more users, and related to that, an equal representation in the WUAs, was initially contested by head-end farmers.

Disagreements among farmers were overcome in managing the scheme. Shukla et al. (2000) outline how the political clout of the WUA leadership helped amass member farmers to engage in WUA activities. For instance, in Khageri, between 1993 and 1996, there were seven general assembly meetings of the WUA, and 25% of the farm households in 1993–1996 had a member participating in general assemblies of branch canal committees. It was estimated that about 95% of the farmers were aware of the IMT/PIM programme (Shukla et al. 2000); however, this awareness and engagement rarely translated to an assured and equal access to water supply for all member farmers in Khageri and Panchakanya. For example, even as the supply of water in the system improved in the 1970s and 1980s, following system rehabilitation, in Khageri, only farmers located at the head ends of the first branch canal were receiving assured flows of water in the monsoon (Khanal 2003).

Similarly, in 1994, in the Panchakanya area in the monsoon only 265 of the 600 ha was irrigated with water from the system (Liebrand and Singh 2012). Both the DOI and farmer leaders are well aware of these inequities in water distribution, and we found that these were only partially resolved through the IMTP project. In the entire history of the IMT/PIM scheme in Panchakanya, the WUA chairperson has only once announced the decision that the flow of irrigation water would be reversed, i.e., in place of head-end to tail-end flows, tail to head-end distributions. This resulted in a furious protest by the head-end farmers. During the night of 8 July 2006, these farmers made a duplicate key, which would allow water into the head-ends to stay open. Figure 4 shows the fake key: the upper, larger squared end was used to close the cross regulating gate in the main canal, while the lower, smaller squared end was used to open the gate of branch canal 1.

The WUA chairperson removed the duplicate key to close the constant flow of water to the head-ends of branch canal 1, and the offenders – who were decision-making members of the WUA – were temporarily expelled from the association. However, the decision to occasionally divert the water from the tail- to the head-ends was also discarded. A large number of farmers we interacted with identified these inequities in water allocation and access, between head and tail-enders; by both the design and flow of the system, as well as by social divides of class, caste, ethnicity, and gender that have always persisted in Khageri and Panchakanya.



Figure 4. Duplicate key used by head-end farmers in Panchakanya to reverse the flow of water in the main canal. Photo credit: M. Singh.

The few agreements reached on some of the above issues between farmers, especially in Khageri, as we discovered, were no longer valid in 2010. Tail-end farmers were still not assured of reliable access to water, and had lost interest in the WUA. Similarly, in Panchakanya, as of 2010, tail-end canals hardly received water. Organisations at the lower levels of the WUA, called sub-branch canal committees, had been abolished “to save WUA administration costs” (chairman of the first branch canal committee Panchakanya, November 2010), and an increasing number of farmers relied on groundwater sources, especially if they had the financial ability to invest in wells. In Panchakanya, the main committee’s decisions and actions hardly applied for daily system management. The WUA, consisting of members of rival political parties, was now essentially seen as a place for furthering party politics.

### Women’s participation in irrigation management

In an attempt to make women aware of their role as irrigators and ensure at least 20% participation of women in WUAs, a one-day “*woman users’ sensitization training*”, involving 17 women, took place in Panchakanya during the IMTP-project (Shukla et al. 1999, 33). This one-off event seemed to have resulted in the effective participation of women farmers in the Panchakanya WUA, compared to other projects, including Khageri. By 2001, 120 of the 177 posts (68%) in the lower-tiers of the WUA (branch and sub-branch canal committees) were held by women (Khanal 2003). However, this high participation and representation of women is said to have happened because an Asian Development Bank-funded NGO established a women’s group in Panchakanya in 2000 (Khanal 2003). This explains why similar degrees of women’s participation never happened in neighbouring Khageri. However, in 2010 we found that women’s participation in Panchakanya had waned, because of the abolition of the lower level committees which were dominated by women.

### Analysing the claims of “success” in Khageri and Panchakanya then and now

In retrospect, in Khageri and Panchakanya, the implementation of the IMTP project went according to plan. WUAs were established relatively quickly as a result of: (i) successful negotiations between the DOI and farmer leaders; (ii) system rehabilitation as a precondition to the subsequent

handover of management responsibilities to user farmers; and (iii) the incentive for the migrant farmers, especially in Panchakanya, to seize this opportunity to legitimise their rights over the irrigation system over the *Tharus*. These events collectively formed the basis for a “successful” implementation of IMT/PIM in Nepal, which was additionally important to showcase for the DOI, as well as for the World Bank and other drivers of this policy. It is thus hardly surprising that success has been claimed especially for Panchakanya, since the early 1990s (Khanal 2003).

In analysing how the recent claims of IMT/PIM success allocated to Khageri and Panchakanya compare to contextual realities, it is important to understand that participation, especially in South Asia, is mediated by hierarchies and entrenched inequities of class, caste, ethnicity, and gender, which create complex ground realities (White 1996; Guthman 1997). In Nepal, feudal and patriarchal land ownership and agrarian practices have been historically fractured by these factors, resulting in enduring relationships of inequality. In this context, we argue that success of IMT/PIM in these two schemes did not apply equally to all farmers and irrigators. The Khageri and Panchakanya WUAs became institutions that reiterated existing inequities in power relations from the start. This should not come as a surprise, because equity and participation concerns were, in the end, nothing more than convenient add-ons of IMT/PIM policy (Groenfeldt 2003).

The prime objective of IMT/PIM was to dissociate government from governance, especially in relation to the public financing of irrigation systems. In the 1980s, this matched the economic pressure on the DOI to transfer maintenance costs and responsibilities to the irrigator farmers (cf. Guthman 1997). From this perspective the handover process in Khageri and Panchakanya has not really been a success. Contrary to policy design, farmers have continued to claim and receive financial support well after the formalisation of WUAs, and the envisioned increase in the ISF collection rate did not reduce the burden on public resources. On the contrary, the formalisation of the WUAs enabled farmer leaders in Khageri and Panchakanya to claim government support and resources more effectively, and the ISFs are now controlled by the WUAs.

Whether one considers the prime objective of IMT/PIM policies, to achieve decentralised management and financial autonomy for irrigation systems and user associations, or other professed goals of equity and empowerment, the handover of Khageri and Panchakanya has never been a complete success. Moreover, in the neo-liberal perspective on development, greater individual (economic) participation in irrigation through WUAs should have resulted in optimised and increased agricultural productivity. Reduction of poverty then follows, and welfare and equity are supposedly achieved as trickle-down effects, but none of this really happened in Khageri and Panchakanya, at least not well enough to qualify as an outstanding success.

Having said that, looking beyond these narrow goals of IMT/PIM, the IMTP project in these two schemes can be considered a success against a number of other criteria. Primary amongst such achievements was the impressive formalisation of user engagement in the irrigation sector. Other important issues to note are:

- The Khageri and Panchakanya irrigation systems have continued functioning despite a civil war between 1996 and 2006, and are characterised by relatively stable and high agricultural production levels compared to other areas in Nepal (Liebrand and Singh 2012).
- If one ignores inequities by class, caste, ethnicity, and gender, the IMTP projects in Khageri and Panchakanya have allowed for some degree of farmers’ participation in WUAs, including by women farmers (Khanal 2003).
- The IMTP project, and IMT/PIM policy in general, enabled a shift in focus in irrigation management from “*hardware*” (concrete) to “*software*” (people). A shift away from engineering views is considered a pre-requisite for increasing the performance of irrigation systems (Shivakoti and Ostrom 2002).



The policy evaluation of IWMI (2009) acknowledges these issues insufficiently, and does not discuss what worked and what did not, for whom and how, in Khageri and Panchakanya. We argue that this limitation applies to the other 106 projects assessed through similar methods and processes. Interestingly, despite an acclaimed “*outstanding success*” such as Panchakanya in Nepal (IWMI 2009), IMT/PIM in Asia is nonetheless framed as a failure.

### The cultivating of “success” and “failure” in irrigation policy

Comparing the interests of donors, government officials, and DOI engineers to the perceptions and experiences of farmers in Khageri and Panchakanya, it is arguable that the conclusion of success for these two schemes, but a failed PIM reflect the interests of those engaged in such evaluations. Or, as Mosse (2004, 658) argues, “*projects do not fail; they are failed [or assigned success] by wider networks of support and validation*”. Regardless, these arguments for IMT/PIM failure appear convincing and will probably influence new policy because these are supported, validated, and coherently cultivated by important irrigation knowledge institutions. It is also likely, in the current context, that this paper and the analyses of two projects could be challenged as anecdotal.

The objective of this paper is not to reject the IWMI report, but to illustrate the methodological limitations in generalising complexity and the politics of irrigation policy-making in doing so. In constructing a policy evaluation for determining success and failure for 108 cases of IMT/PIM, IWMI, in cooperation with international policy actors, developed an abstract coding method. The authors themselves highlight the limitations in generalising complex ground realities, and yet, we note, despite this wisdom, such methods continue to inform policy repackaging. We argue that the use of abstract coding and modelling methods removes policies from the context of complex realities, thereby making (new) policy essentially “*unimplementable*” (Mosse 2004).

Table 1 shows the factors taken into account to assess IMT/PIM in the IWMI (2009) report, as well as the method used to determine the success or failure for the 108 diversely located cases of irrigation management transfer. The method is fairly straightforward and makes the policy evaluation appear clear. The method is also typical for neo-liberal thinking because it focuses on and assumes uniformity between and among users, systems, and countries; uses (competitive) ranking, and seeks to measure (individual or case) performance “objectively” through coding. In order to determine success or failure, nine indicators were defined; the first seven are “*outcome indicators*”, and the last two are “*impact indicators*”. For each indicator, secondary data was re-interpreted to arrive at a binary coding of success and failure: “1” signifying success and “0” failure, according to strict criteria (see the column on “scoring system” in Table 1 for these criteria). Then a “*composite success score*” was calculated for each of the 108 systems on a scale of 0 to 10. Indicators for which no data were available were left out of the calculation. For example, if data were available for six indicators out of the nine possible indicators, then the composite success score was calculated assuming a maximum possible score of 6 (and not 9) (IWMI 2009). A score of 5 or above was considered a success and others a failure. Based on this coding methodology, an interpretation of Khanal’s (2003) work gave scores of 8.3 and 10.0 for respectively Khageri and Panchakanya, labelling them as cases of “*success*” and “*outstanding success*”.

Evidently, the scores allocated to specific indicators in the IWMI report indicate gross generalisations. For instance, a score of “1”, in relation to an “*enhanced equity*” in terms of water distribution in Khageri and Panchakanya cannot account for the diverse outcomes of elaborate negotiations among heterogeneous groups of farmers, and with the DOI in these two schemes. While there was a definite coming together of farmers to manage irrigation, the interactions largely failed to address the enduring exclusion of some (unequal access to water for tail-end

Table 1. Constructing a “composite success score.”

No.	Indicator	KIS	PIS	Scoring system n/a = not available
1	ISF collection rates	0	1	1 = if gone up 0 = no change or decline
2	Financial viability of WUA	n/a	1	1 = if improved 0 = no change or deteriorated
3	Functional condition of irrigation infrastructure	1	1	1 = if improved 0 = no change or deteriorated
4	Enhanced equity (in distribution of water)	1	1	1 = if gone up 0 = no change or decline
5	Reliability and/or adequacy in water distribution	1	n/a	1 = if gone up 0 = no change or decline
6	Popular awareness and participation in WUA activities	1	1	1 = if gone up 0 = no change or decline
7	Reduction in frequency of disputes	n/a	n/a	1 = yes 0 = no or got worse
8	Crop related impacts (production, yield, cropping pattern, area)	1	1	1 = if any of these has increased 0 = otherwise
9	Livelihoods impacts (income, wage, job, less poverty, less migration)	n/a	n/a	1 = if any of these has increased 0 = otherwise
	<b>Composite success score</b>	<b>8.3</b>	<b>10.0</b>	<b>Scale: 0–10 (failure to success)</b>

Source: IWMI 2009, 107–108.

farmers, continued marginalisation of indigenous irrigation users, etc.). As we described above, primary research on these two projects in Nepal reveals diverse complexities of PIM, which is difficult, if not impossible, to collate into simplistic binary codes of success or failure.

Analysing the FAO and IWMI reports (FAO/IWMI 2007; IWMI 2009; IWMI/FAO 2009) shows that the reports incorporate the comments and critique of significant numbers of professionals with diverse backgrounds, who operate in the knowledge networks of irrigation policy and practice. Figure 5 shows how the reports were generated through irrigation “*knowledge hubs*” and Figure 6 presents a list of international organisations whose staff contributed to a joint report of IWMI and the FAO (2009). Indeed, most thorough policy evaluations are supported by a wide base of interaction and dialogue, however, such closed networking is often limited to the international level. Dialogue and discussion on what policy works, why, and how, happens less frequently at the national levels, and almost never at the very local levels of practice.

“This project is a collaboration between many authors and contributors from numerous institutions, led by IWMI and FAO through KnowledgeHubs. KnowledgeHubs is a regional network of organizations whose mission is to deliver state-of-the-art knowledge-based products and services that meet the practical needs of countries, institutions and society in the Asia-Pacific region. IWMI leads the knowledge hub on Irrigation Service Reform in this network. This booklet was developed in partnership with FAO as a first product of the hub and provides guidelines for revitalizing Asia’s irrigation sector” (IWMI/FAO 2009)

Figure 5. Policy analysis of IWMI through knowledge hubs.  
Source: IWMI/FAO 2009.

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Figure 6. Water policy professionals involved in a policy evaluation of IWMI.  
Source: IWMI/FAO 2009.

Further, in relation to this particular study, we noted through personal communication with some of the authors of the IWMI (2009) report, that while the wide-ranging discussions had resulted in some questioning and critique of the assumptions that underpin the neo-liberal principles for reform of irrigation management, these issues were never flagged for attention, and the report is largely silent on these aspects. The IWMI (2009) report scrutinises issues of “*weak*” state officials, “*unwilling*” engineers, and “*ignorant*” farmers associated with irrigation management, but does not ask why the neo-liberal engineering irrigation narrative – that decentralised management, cost recovery and financial autonomy will result in better maintenance and system performance – persists in the irrigation sector. Mosse (2004, 654) argued that “*development actors work hardest of all to maintain coherent representations of... authorised policy, because it is always in their interest to do so*”. In the light of Mosse’s observation, it appears that neo-liberal ideas and engineering views will remain a persistent cornerstone for policy formation in the irrigation sector for some time to come.

Thus, while the IWMI report (2009, 1) acknowledges the “*conceptual weakness*” of the IMT/PIM model, it does not scrutinise the neo-liberal and engineering concepts that underpin the model. While the authors acknowledge that it is meaningless to search for a “*magic formula*” for farmers’ participation in WUAs, and suggest the need to look beyond conventional recipes, the report nevertheless concluded that IMT/PIM overall has largely failed in Asia (IWMI 2009, 1). This evaluation will likely be highly instrumental for others (i.e., donors and governments) to support the latest proposed Public Private Partnership (PPP) agenda for irrigation service reforms. In keeping with neo-liberal and engineering beliefs that improving the (technical) performance of irrigation systems requires better financial management, the FAO/IWMI (2007) as

well as the IWMI (2009) reports call for increased investments in the irrigation sector through market-oriented measures such as irrigation services contracting. While it is agreed that “PPP [is] a recent business and ... too early to take a call on success or failure”, it is still positioned as a way forward, primarily because of the “high interests of donors and ... even national governments in engaging the private sector in [irrigation] management” (IWMI 2009, 43, 46).

These arguments show that irrigation policy designs are essentially driven by the interests and priorities of key actors who operate in a closed international network, rather than by contextual realities on the ground. Influencing policy shifts by presenting the “old” as a failure in ways that appear technically sound and convincing – even though the evaluation is often an over-simplification of complex ground realities – is however, not uncommon in development practice (cf. Rap 2007). Mosse (2004, 640) states that “the policy process ensures that policies do not command loyalty for long. Better theory, new paradigms and alternative frameworks are constantly needed. In the development policy market place the orientation is always future positive.”

## Conclusion

IMT/PIM interventions in Khageri and Panchakanya in Nepal helped shift the focus in irrigation management from systems to users and allowed for varying degrees of farmers’ participation. But they did not challenge inequities among irrigation users, nor effectively reduce public spending on irrigation. Hence, labelling these projects as cases of (outstanding) success is as problematic as the conclusions first of failed IMT/PIM processes, and second in the proposition of public-private-partnerships approaches to irrigation management as a means to achieve equitable, productive, and sustainable access to irrigation water in Asia (IWMI 2009; IWMI/FAO 2009). If policy evaluations are to inform and reform practice, they need to critically examine the successes, limitations, and flaws of previous reforms. And if vastly different local socio-political contexts limit making generic solutions, then the solution is surely to stop framing new, blanket approaches to managing irrigation.

Our findings in Khageri and Panchakanya show that the way participation was implemented on the ground closely mirrored participation as framed within the neo-liberal design of IMT/PIM – with farmers paying a fee for WUA membership, and thus participating to receive their water share. The real incentives for farmers to participate were overlooked. Within this limited framework of participation, Khageri and Panchakanya do qualify as successful, but the outcomes barely address the key objectives of the IMT/PIM policy, i.e., sustainable reduction in state investments to irrigation infrastructure and services. Consequently, in Khageri and Panchakanya or elsewhere, promoting market investment and a further reform of national authorities may albeit temporarily vitalise the sector physically and financially; but such a design, without critical evaluation of past irrigation policies, will not resolve issues of financial decentralisation, inequalities, exclusion, and unfair power relations, which were the key limitations in the IMT/PIM design. More interestingly, even though there are entrenched and evolving complexities and inequities on the ground and maintenance is not always up to date, it is unlikely that the new proposed solution of market reforms will lead to higher levels of agricultural production. This was an important goal of the IMT/PIM policy in the 1990s, and it is again an objective in the latest call for “revitalizing the irrigation sector” (IWMI/FAO 2009).

Based on our analysis, we formulate two lessons for development practitioners. First, to make policies for service delivery more effective, it is necessary to critically examine how policies are underpinned by ideological priorities, such as promoting financial autonomy. For the irrigation sector, this would mean to scrutinise the supposedly causal relation between poor maintenance, low cost recovery, and financial autonomy, and acknowledging that this policy narrative has enabled the consistent application of neo-liberal and engineering principles in the irrigation

sector (cf. Groenfeldt 2003; Suhardiman and Mollinga 2012). Second, users' participation is a valuable concept in development policy, with the potential to empower marginalised rural communities, or at least, some members of those communities. This aspect is insufficiently acknowledged in the current agenda for policy-making. Targeting issues of participation and addressing entrenched inequities in society is a complex process, and empowerment – aside from financial autonomy – is an important goal in itself.

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